

**W1-2-60-1-6**

**JOMO KENYATTA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY**

**UNIVERSITY EXAMINATIONS 2015/2016**

**EXAMINATION FOR THE DEGREE OF BACHELOR OF**

**SCH 2437: AGROCHEMICAL**

**DATE:DECEMBER 2015 TIME: 2 HOURS**

**INSTRUCTIONS: ANSWER QUESTION ONE AND ANY OTHER TWO QUESTIONS.**

QUESTION ONE

a. Define the following terms

i. Insecticides

ii. Fumigants

iii. Matricides

iv. Acaricides

v. Miticides

vi. Fungicides.

viii. Fertilizer. (14 marks)

b Briefly explain the following observations

i. Application of inorganic pesticides has been replaced with organic pesticides.

(3 marks)

ii. Both lead arsenate and calcium arsenate may not be the “choice” insecticide.

(4 marks)

iii. Some insects develop resistance to dichlorodichiphenyltrichloroethane (DDT)

(2 marks)

iv. Nicotine can be used as an insecticide. (6 marks)

v. The pH of the soil is an important factor when considering soil fertility.

(2 marks)

QUESTION TWO

a. Describe briefly the functions of the following nutrients

i. Phosphorous (4 marks)

ii. Manganese (1 mark)

b. i. Why should fertilizers be added into the soil. (5 marks)

ii. State three sources of natural fertilizers and natural inorganic fertilizers.

(6 marks)

c. i. Describe how ammonium nitrate may be prepared through neutralization reaction. (2 marks)

ii. “Ammonium nitrate is applied as a mixture of calcium carbonate and ammonium sulphate. Explain. (2 marks)

QUESTION THREE

a. i. Briefly explain how ammonium sulphate may be synthesized using gypsum

(4 marks)

ii. State one industrial use of the byproduct of the above process. (2 marks)

iii. State four factors that can be used to promote industrial yield of ammonium sulphate production. (4 marks)

b. Benzene hexachloride (BHC) o r lendane is a synthetic pesticide.

i. Describe the chemical equation and conditions for its industrial preparation.

(4 marks)

ii. State the IUPAC name for BHC (1 mark)

iii. BHC is not a single compound? Explain. (1 mark)

iv. During its production sulphur and other substances are added” Why. (1 mark)

v. How is the active component of this process separated? (3 marks)

QUESTION FOUR

a

i. State the properties of a good rodenticide. (2.5 marks)

ii. Give two examples of a natural rodenticide. (1 mark)

ii. Most of chemical redenticides are anti coagulants. Explain. (4 marks)

iv. Zinc phosphide is a rodenticide. How does it act as a rodenticide? (3.5 marks)

v. On the bottle containing zinc sulphide, it was written HANDLE WITH GREAT CARE AT HOME? Explain in details. (2.5 marks)

b. i. Using chemical equations, describe the Ostwalds process for manufacturing nitric acid. (6.5 marks)

ii. How is the temperature of the catalyst maintained in this process. (1 mark)

iii. Describe how NH4NO3 may be prepared from HNO3. (1 mark)

iv. “NH4NO3 as a fertilizer, provide a challenge in applying it into the soil” Why?

(1.5 marks)